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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Arnab Das

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11/02/2004

Docket Administrator (Room 3C-512)
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EXAMINER

GOSHTASBI, JAMSHID

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/853,000	Applicant(s) DAS ET AL.	
	Examiner Jamshid Goshtasbi-G.	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>05/10/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-9 are pending in the application.

Claim Rejections – 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine et al. (US 5850394) in view of Haardt (US 6377559 B1).

As to **Claim 1**, Sekine et al. discloses a CDMA communication system (col. 2, line 64) transmitting a set of defined signaling information (signaling data; col.2, line 36, and lines 26-28) over control channels (a few exclusive channels, col. 2, lines 34-37; the plurality of signaling data channels, col. 4, lines 44-47) where a plurality of spread encoders (Walsh orthogonal code system, col. 3, line 33), each using a different spread code and corresponding to a respective one of the user data channels and the signaling data output channel(s), spread encoding the user data and the signaling output data.

However, Sekine et al. is silent on a defined set of signaling information to be transmitted over a first signaling channel, and scrambling signaling

Art Unit: 2637

information to be transmitted over a second signaling channel based on the particular signaling information, from the defined set, to be transmitted over the first signaling channel.

In disclosing a method for transmitting data in radio communication system, however, Haardt teaches superimposing first signaling information items with second information items at a transmitting end, and transmitting the aggregate signal in a frequency channel for distinguishing the first signaling information items and the second information items (col. 2, lines 32-35) where signaling information items (and user information items) are scrambled (in an interleaver), spread in accordance with individual spread codes, and superimposed for transmission (col. 7, lines 52-57; col. 10, lines 37-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Haardt into the method of Sekine et al. for producing the claimed invention because transmitting the aggregate signal over a second signaling channel provides for additional means for recovering the primary signaling information corresponding to a user data in communication standards that require transmission of signaling information over both a primary and a secondary signaling channels.

Claim 2 inherits the limitations of Claim 1. Further, Haardt teaches the signaling information transmitted over the first signaling channel (the first signaling information transmitted as part of the aggregate signal as mentioned in the rejection of Claim 1 above) and received over such channel (the received aggregate signal) can be corrected without application of additional channel

Art Unit: 2637

coding to such information (the influence of the first signaling information items is removed, in such a way that a channel estimation is carried out for the first signaling information items, and channel coefficients are determined (col. 4, lines 14-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Haardt into the method of Sekine et al. for producing the claimed invention because it makes the recovery of the first signaling information item possible directly from the received aggregate signal.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine et al. (US 5850394) in view of Haardt (US 6377559 B1) as applied to Claim 1 above, and further in view of Holtzman et al. (US 6760587 B2).

As to **Claim 3**, both Sekine et al. and Haardt are silent about associating a particular scrambling procedure of a particular scrambling scheme to each signaling information from the defined set.

In disclosing transmitter for a wireless communication system operating according a standard such as cdma2000 (col. 8, lines 9-17), however, Holtzman et al. shows steps in preparation of signaling information (col. 8, lines 51-55) for transmission on a control channel (col. 8, line 39 and line 51) where control and signaling information messages are generated, organized into blocks of bits (including CRC, tail bits, and redundancy error-correcting codes), and encoded into symbols (col. 7, lines 20-42; col. 9, lines 1-12); further, an interleaver jumbles and reorders the symbols in accordance with a predetermined interleaving format

Art Unit: 2637

and a scrambler scrambles the interleaved symbols with a predetermined spreading sequence (using a pseudorandom noise sequence generated at a predetermined chip rate, col. 7, lines 42-45), using a spreading element that spreads the control channel with a short Walsh sequence with a predetermined spreading factor (col. 9, lines 12-15; col. 10, lines 14-19).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Holtzman et al. into the method of Sekine et al. (in view of Haardt) for producing the claimed invention because it provides for superimposing of the scrambled first signaling information with further information as mentioned in the rejection of Claim 1 above.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine et al. (US 5850394) in view of Haardt (US 6377559 B1) as applied to Claim 1 above, and further in view of Holtzman et al. (US 6760587 B2) and DeClerk et al. (US 5970058).

Claim 4 inherits all the limitations of Claim 3. However, Holtzman et al. is silent about the interleaving format. In disclosing a transmitter of the mobile station in CDMA communication, however, DeClerk et al. teaches an interleaver wherein symbols are individually input into a typically square matrix with a predetermined size block of data symbols, filling the matrix in a column by column manner; and then symbols are individually output from locations within the matrix so that the matrix is emptied in a row by row manner (col. 5, lines 34-

Art Unit: 2637

45); further, the predetermined size of the block of data symbols defined by the matrix is derived from the maximum number of data symbols which can be transmitted at a coded bit rate within a predetermined length transmission block (col. 5, lines 48-52).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of DeClerk et al. into the method of Holtzman et al. for producing the claimed invention because it provides for similarly interleaving (and scrambling) the signaling information to be transmitted over the second organizing the second (control) signaling channel.

Claim 5 inherits all the limitations of Claim 3. Further, DeClerk et al. teaches that orthogonal Walsh codes can be applied to separate data signals from each other in a CDMA communication systems (col. 1, lines 33-37), and that a Walsh code corresponds to a single row or column of the Hadamard (square) matrix (col. 1, lines 38-39); further, particular mutually orthogonal Walsh codes can be selected from the set Walsh codes within a Hadamard, and a particular data signal can be separated from the other data signals by using a particular Walsh code (with a particular spreading factor) to spread the particular data signal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of DeClerk et al. into the method of Holtzman et al. for producing the claimed invention because selecting a particular orthogonal Walsh code having a particular spreading factor

Art Unit: 2637

to spread the signaling information (superimposed) results in scrambling the signaling information.

6. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekine et al. (US 5850394) in view of Haardt (US 6377559 B1) as applied to Claim 1 above, and further in view of Holtzman et al. (US 6760587 B2), DeClerk et al. (US 5970058) and Applicant's admitted prior art.

Claim 7 inherits all the limitations of Claim 3. Further, Applicant's admitted prior art (page 2, lines 9-19) discloses that a communication system according to cdma2000-1x-EV-DV standard compliant CDMA system provides for two control channels (a primary control channel and a secondary control channel) per data channel, carrying signaling information that dictate how the user information is transmitted over the data channel information transmitted on and how the user information is processed after having propagated through the channel.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings Applicant's admitted prior art because of the already existing requirement of two control channels in the standard.

Claim 8 inherits all the limitations of claim 7. Further, the claimed method including features (primary control channel and the secondary control channel) that correspond with subject matter mentioned above in the rejection of Claim 7, are applicable hereto.

Art Unit: 2637

Claim 9 inherits all the limitations of claim 7. Further, Applicant's admitted prior art (21-23) discloses CDMA systems complying with the cdma2000-1x-EV-DV standard, information in both control and data channels are transmitted in the form of sub-packets during one or more time slots.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings Applicant's admitted prior art because the inclusion of sub-packet length indicator for the secondary control channels and data channels is needed to comply with the intended standard.

Allowable Subject Matter

5. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 7 depends on the rejected base claim 6.

Other prior art cited

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lundby et al. (US 6590292 B1) discloses a the use of a first and a second transmission signal for transmitting information signals.

Wu et al. (US 7699039 B2) mentions the 1xEV-DV standard.

Bonta et al. (US 6725043 B2) teaches the use of the same signaling

Art Unit: 2637

control channel by multiple subscribers in a CDMA system.

Black et al. (US 6661833 B1) discusses the use of Walsh codes and scrambles in a transmitter for a CDMA system.

Bruckert et a. (US 5325394) teach Walsh codes and Hadamard matrix and scrambling.

Zellare Mobilfunknetze (IND/RWTH Aachen, 1999) teaches Walsh codes, spreading and scrambling in the context of a CDMA communication system.

Contact information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jamshid Goshtasbi-G., whose telephone number is (571) 272-3012. The examiner can normally be reached on M-F 8:00/4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel, can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair->

Art Unit: 2637

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Jamshid Goshtasbi-G.
Examiner
Art Unit 2637


JEAN B. CORRIELUS
PRIMARY EXAMINER

10/28/04